

**124,551**



# PATENT

## SPECIFICATION

**Application Date, Mar. 22, 1918. No. 5051/18.**

*Complete Left, Sept. 23, 1918.*

**Complete Accepted, Mar. 24, 1919.**

## PROVISIONAL SPECIFICATION.

### Apparatus for Recovering Waste Oils or Separating Oil from Water or other Impurities.

I, HENRY CROFTS LONGSDON, Managing Director of Summerscales Limited, of Phoenix Foundry, Keighley, in the County of York, Engineers and Machine Makers, do hereby declare the nature of this invention to be as follows:—

It relates to apparatus for recovering waste oil or separating oil from water and other impurities and consists in constructing several parts of said apparatus in such a manner that the process of recovering or separating the one from the other is carried out continuously and automatically at a comparatively little cost and under such conditions as to ensure the efficient functions of the apparatus.

In carrying this invention into effect an appropriate receptacle or vessel, preferably in the form of a cylindrical tank is made use of with an inlet pipe made to enter same at its base. The nozzle of this pipe is made to extend vertically so that an inverted conical deflector may be mounted at an appropriate distance above said orifice in order that any liquids flowing through the nozzle will strike against said conical deflector to be thereby made to travel in a somewhat lateral path.

Extending over and surrounding the orifice of the inlet pipe is mounted a hollow cone shaped shield to the apex of which is secured an outlet pipe which extends vertically therefrom to reach to a horizontal part which leads over and beyond the upper part of the tank within which the several devices are mounted.

A water outlet pipe is mounted near the base of the tank so that by taking said outlet pipe vertically to an appropriate height the water and other liquid contents of the tank are maintained at any desired and constant level (which level is below the outlet pipe leading from the conical shield hereinbefore described) by the syphonic actions of said outlet pipe.

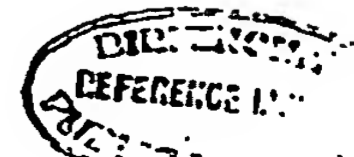
A coil of steam heated pipes or other suitable heating apparatus may be arranged beneath the main tank or in proximity thereto to ensure the liquefaction of the oil or fatty matter within the apparatus.

A suitable valve for the discharge of any solid or semi solid refuse that may accumulate at the bottom of the tank is also made use of. -

The actions of the apparatus are as follows:—

The tank is firstly filled with water to the depth that the syphonic discharge pipe will permit. The inlet pipe leading to the tank is then opened to conduct waste oil and water or fatty matter and impurities to the interior of the apparatus, and as this liquid escapes from the nozzle of the inlet pipe it rises and strikes against the deflector within the conical shield hereinbefore described,

[*Price 6d.*]



thus the lighter particles or globules of fatty or oily matter being lighter will rise and follow the interior walls of the shield while the water and other heavy matter will be deflected and will descend towards the base of the tank from which it will be drained away by the syphonic actions hereinbefore described. The oil and fatty matter will rise from the conical shield through the discharge pipe and will flow over the top of the receptacle to any part where it has to be conveyed on being entirely separated from the water and its other impurities.

To enable the waste oil and water to enter at sufficient pressure to enable the same to act as hereinbefore described, it may be supplied from a tank or the like situated at a higher level than my improved apparatus.

Dated this 21st day of March, 1918.

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Agent;

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10, Bradshawgate, Bolton, Lancs.

### COMPLETE SPECIFICATION.

#### Apparatus for Recovering Waste Oils or Separating Oil from Water or other Impurities.

I, HENRY CROFTS LONGSDON, Managing Director of Summerscales Limited, of Phoenix Foundry, Keighley, in the County of York, Engineers and Machine Makers, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

It relates to apparatus for recovering waste oil or separating oil from water and other impurities and consists in constructing several parts of said apparatus in such a manner that the process of recovering or separating the one from the other is carried out continuously and automatically at a comparatively little cost and under such conditions as to ensure the efficient functions of the apparatus.

In the accompanying sheet of drawings:—

Fig. 1 is a sectional elevation of apparatus constructed in accordance with my invention.

Fig. 2 is a plan of said apparatus.

In carrying my invention into effect an appropriate receptacle or vessel *a* preferably in the form of a cylindrical tank is made use of with an inlet pipe *b* which is made to enter same at its base *a*<sup>1</sup>. The nozzle *b*<sup>1</sup> of this pipe *b* is made to extend vertically, so that an inverted conical deflector *c* may be mounted at an appropriate distance above the orifice of said nozzle *b*<sup>1</sup> in order that any liquids issuing through said nozzle *b*<sup>1</sup> will strike against the conical surface of the deflector *c* by which formation said liquids are deflected in a somewhat lateral direction.

Extending over and surrounding the orifice *b*<sup>1</sup> of the pipe *b* is mounted a hollow cone shaped shield *d* to the apex *d*<sup>1</sup> of which is secured an outlet pipe *f* which extends vertically therefrom to reach to a horizontal part *f*<sup>1</sup> which leads over and beyond the upper part of the tank *a* within which the several parts are mounted.

A water outlet pipe *g* is mounted to enter at *g*<sup>1</sup> the base of the tank *a* so that by taking said outlet pipe *g* vertically to an appropriate height the water and other liquid contents of the tank *a* are maintained at any desired and constant

level (which level is below the outlet pipe  $f^1$  leading from the vertical shield  $d$  hereinbefore described) by the syphonic actions of the outlet pipe  $g$ . A coil of steam heated pipes  $h$  (or other suitable heating apparatus) may be arranged beneath the main tank  $a$  or in proximity thereto to ensure the liquefaction of the oily or fatty matter within the tank  $a$ .

A valve  $k$  for discharging any solid or semi-solid refuse that may accumulate at the bottom of the tank  $a$  is also made use of.

The actions of the apparatus are as follows:— 2

The tank  $a$  is first filled with water to the height that of the syphonic discharge pipe  $g$  will permit. The inlet pipe  $b$  leading to the tank  $a$  is then opened to conduct waste oil and water or fatty matter and impurities to the interior of the apparatus, and as this liquid escapes from the inlet  $b^1$  it rises and strikes against the deflector  $c$  within the conical shield  $d$  hereinbefore described, thus the lighter particles or globules of fatty or oily matter (on account of being lighter) will rise and follow the interior walls of the shield  $d$  while the water and other heavier matter will be deflected and will descend towards the base of the tank  $a$  from which it will be drained away through the pipe  $g$  by the syphonic actions hereinbefore described.

The oily and fatty matter will rise from the conical shield  $d$  through the discharge pipe  $f$ , and will flow through the part  $f^1$  over the top of the receptacle  $a$  to any place where it is to be conveyed on leaving the apparatus.

To enable waste oil and water to enter at sufficient pressure in order that same may act as hereinbefore described it may be supplied to the tank  $a$  from a tank  $m$  situated at a higher level.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Apparatus for recovering waste oil or separating oil from water and other liquids, consisting of a tank, a conical shield mounted within said tank and a deflector mounted within said shield to deflect the liquids issuing from the inlet nozzle, substantially as herein specified.

2. In apparatus as claimed by Claim 1, the employment of a tank with inlet and outlet pipes arranged in the relative positions described, substantially as herein specified.

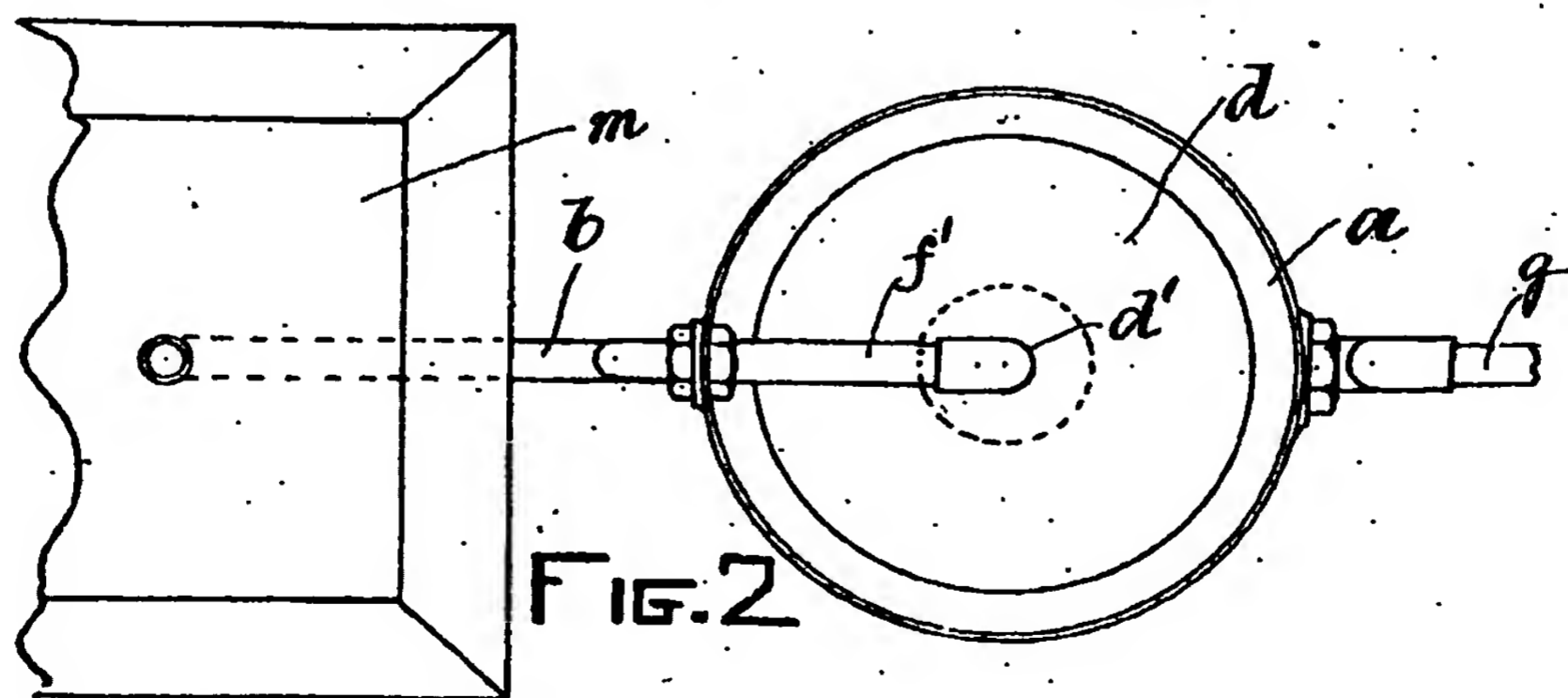
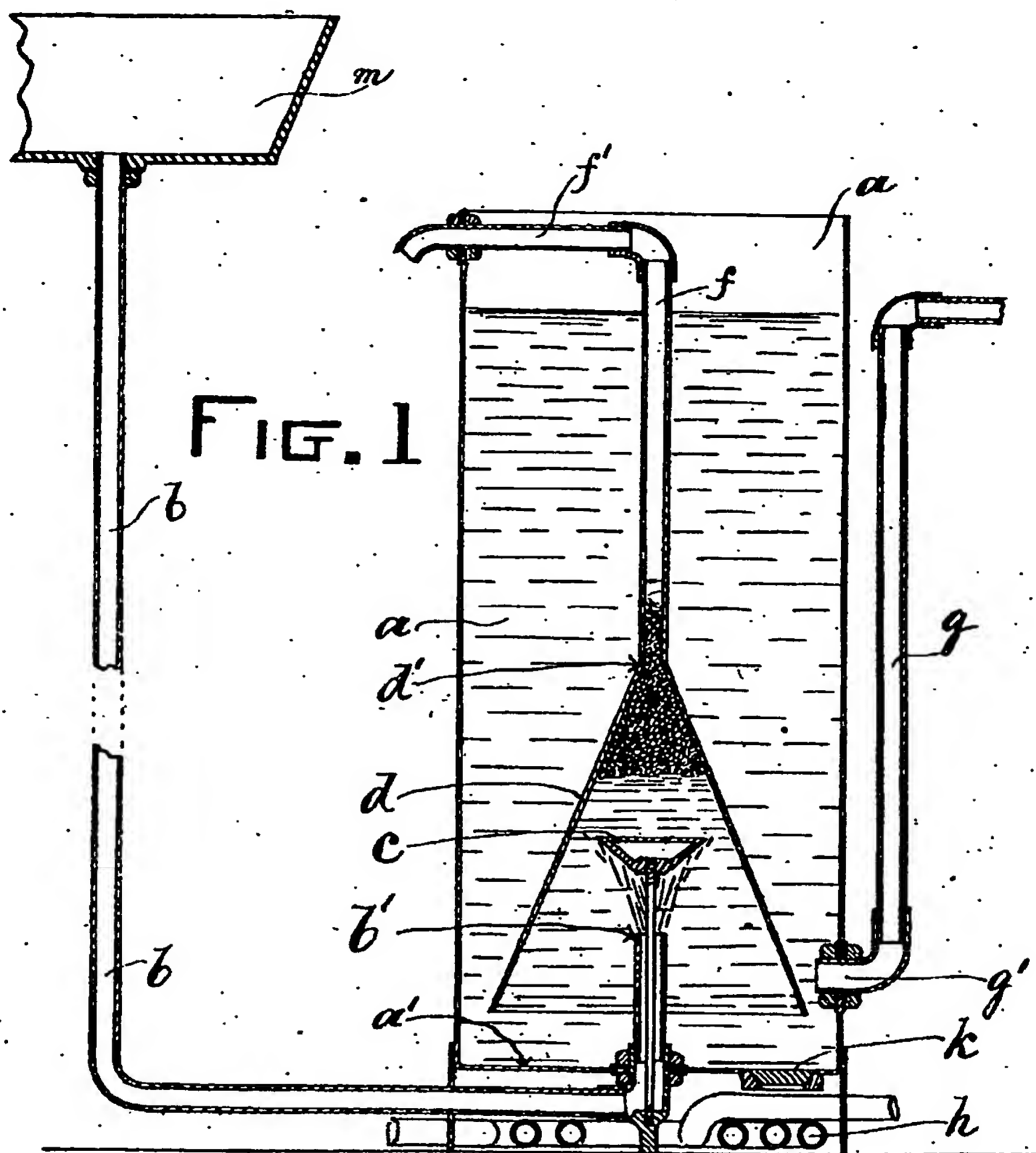
3. In apparatus as claimed by Claim 1, the employment of heating devices as a coil of steam pipes or the like, substantially as set forth.

4. In combination with apparatus as claimed by Claim 1, the employment of feed tank situated relatively with said apparatus as herein described.

Dated this 21st day of September, 1918.

SAMUEL HEY,  
Agent.

[This Drawing is a reproduction of the Original on a reduced scale.]



Malby & Sons, Photo-Litho.

EXPLANATION  
OF THE DRAWING